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ABSTRACT

This distributive education performance-based instructional unit is designed to help students understand the system of physical distribution and to act as an aid to guiding students in preparing for future careers in the transportation industry dealing with the retail, wholesale, and service occupations. (Physical distribution involves the moving and storage of goods, services, and people.) This guide includes seven lesson plans, each based on 55-minute class periods. The lesson plans cover the following information: occupations in transportation pertaining to marketing and distribution; activities involved in warehousing and merchandise-handling; basic types of carriers used in transportation; the appropriate steps necessary to transport a product from a producer to the retail store; and the requirements necessary to enter specific transportation industry careers dealing with retail, wholesale, and service occupations. Each lesson plan includes most of the following items: information sheets, assignment sheets, transparency masters, key and answer sheets, and teacher reference sheets. A list of terminal and enabling objectives and a pre-assessment instrument and key precede the lesson plans. Optional activities, a bibliography, a post-assessment instrument and key, and a unit evaluation are included at the end of the unit. (BM)

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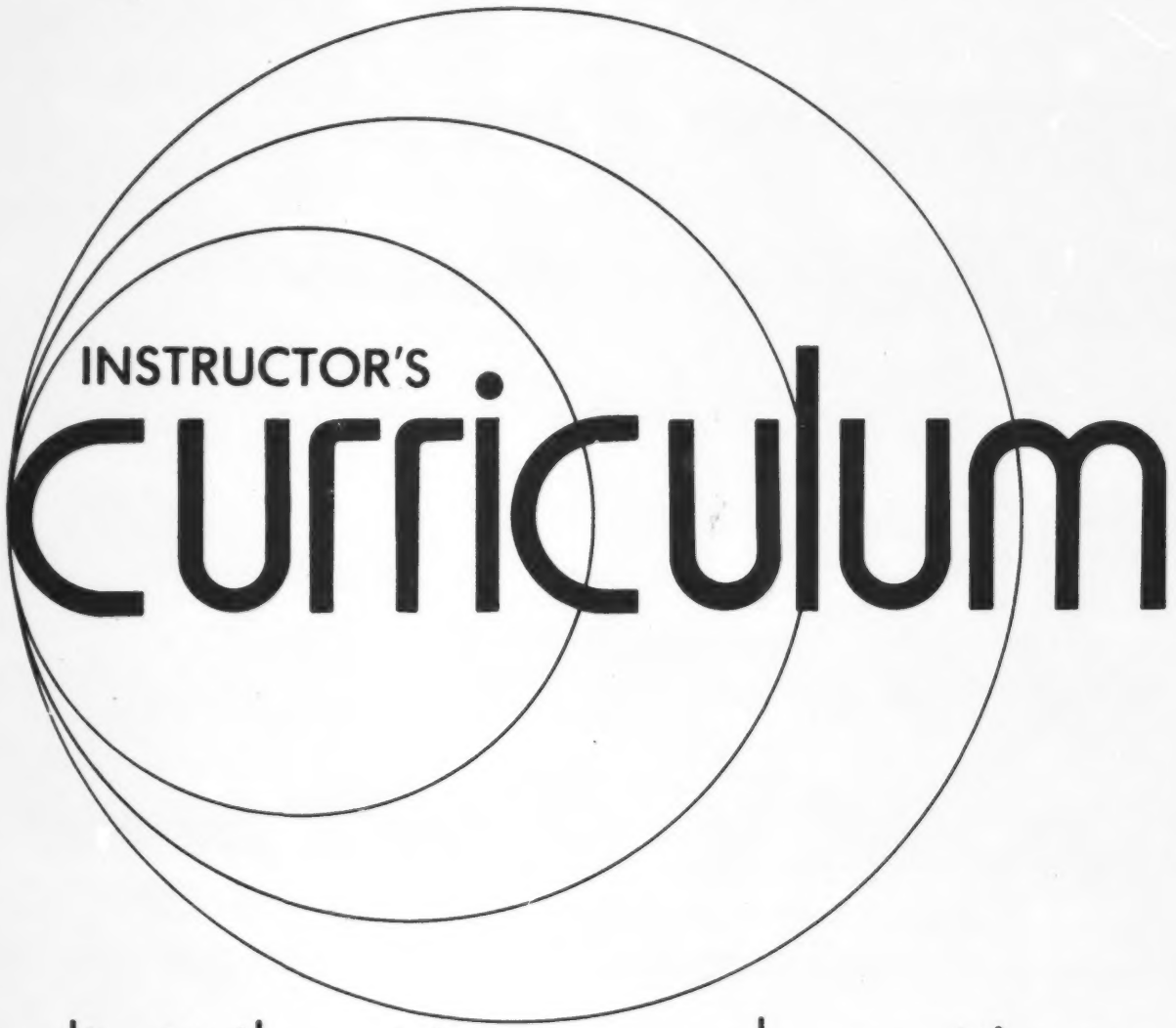

distributive education

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LESSON PLAN FORMAT

Introduction and Objectives	Blue
Unit Outline	White
Pre Assessment	Buff
Pre Assessment Key	Grey
Lesson Plans	Yellow
Information Sheets	Pink
Assignment Sheets	Green
Transparency Masters	White
Key and Answer Sheets	Grey
Teacher Reference Sheets	Blue
Optional Activities and Bibliography	White
Post Assessment	Buff
Post Assessment Key	Grey
Unit Evaluation	Buff

FOREWORD

The Missouri Distributive Education Curriculum is a performance-based curriculum for distributive education throughout the state of Missouri. This curriculum system is composed of twenty units, ten designed for use in junior preparatory classes, and ten for senior cooperative distributive education classes. All units were written by teams of distributive education teacher-coordinators. Performance objectives and content of the units were validated by advisory committees composed of persons in business, during the field-tests conducted by distributive education teacher-coordinators in their classrooms. The units were then corrected, improved and made ready for final printing.

Each unit is self-contained, which means that unless desired, no outside reference is needed to teach the unit. Each unit also has suggested optional activities to supplement instruction. The units can be viewed in two ways: a "survival kit" for the beginning teacher, or as an organizational aid to the experienced teacher.

Philosophy of the Curriculum

Almost without exception, instruction is intended to equip students to do something beyond the classroom. It seems beyond debate that any instruction must be based upon a definite analysis of whatever it is that the student is expected to be able to accomplish as a result of the instruction. Without a clear description of the kind of behavior that will be required of the student, it is impossible to determine with any degree of precision what is to be taught. With this in mind, a careful and thorough analysis of "what the student must do" and "what the student must know" in order to perform in a desirable manner in business was conducted during the development of the objectives for the units.

A terminal performance objective and appropriate enabling objectives for each unit were formulated. The objectives were developed by teams of experienced coordinators drawing on their own expertise, other curriculum materials, and the research of Crawford, Lynch and others. The objectives and the corresponding unit performance evaluations were then validated by people representing the business community.

Unit Components

Each unit is completely self-contained. All instructional materials necessary to teach each unit are provided. To supplement the teaching of the units, optional activities are suggested.

Each unit follows a unique color-coding and numbering system. The units contain the following components:

Introduction: This component provides a thumbnail sketch of the unit and the content and describes why mastery of the objectives is important to the learner. It is designed to motivate the students as well as orient them to the unit.

Performance Objectives: The terminal objective specifies the performance which will be expected of the learner at the completion of the unit. The enabling objectives specify the information, products and competencies which must be mastered or produced by the students in order to be able to perform the terminal objective.

Pre-Assessment: This is a measurement tool to determine the degree of knowledge and/or competency the students already possess of the unit's content. For some units, the pre-assessment is a paper-pencil pre-test. For other units, the pre-assessment consists of pertinent questions and class discussion.

Unit Outline: This presents a table of contents of the unit, the time required for the unit and the materials and resources needed.

Lesson Plans: Lesson plans are presented for each day of the unit accompanied by all necessary material including student information sheets, assignment sheets and teacher materials.

Post-Assessment: This is an objective examination which measures the student's mastery of the enabling objectives. Theoretically, its purpose is not to determine a grade, but to inform the teacher as to whether or not the students are prepared to attempt the unit performance evaluation.

Unit Evaluation: Each unit contains an evaluation of the student's performance or development of a product which is related as closely as possible to actual practice in the world of work. For many units, business people are utilized as evaluators. The unit performance evaluation is critical to effective instruction of the unit because only then will the teacher and students know whether or not the students actually mastered the unit.

Unfortunately, many teachers decide to "take a short-cut," and eliminate the unit evaluation. Ending the unit with the post-instruction assessment falls far short of concluding the unit. Everything accomplished in the classroom from the day the unit was introduced to the completion of the post-instruction assessment has been designed so that the student would be able to attempt the unit performance evaluation.

This evaluation has been developed to determine realistically whether or not the student can satisfactorily perform the terminal objective which specifies the performance expected of the learner at the completion of the unit.

For example, the performance required for the unit, *Getting a Job*, is an actual job interview. For *Parliamentary Procedure*, the performance evaluation is to conduct a meeting using parliamentary rules. For *Economics of Marketing*, the performance evaluation is to develop a product, identify the market functions, define a marketing concept for the product, show what market segments will be appealed to, classify what stores will sell the product, what channels of distribution will be used and what marketing strategy will be used based on the psychological needs of consumers. The unit evaluation, properly conducted, will serve several purposes:

*Provides a "doing" activity for students and an opportunity for them to display the skills and competencies they have acquired.

*Provides students with an opportunity to gain a sense of pride in their accomplishments, as they satisfactorily complete the activity.

*Provides students with an opportunity to receive constructive first-hand knowledge of what is taught in a distributive education program.

*Serves as a good public relations tool for the distributive education program, and could definitely enhance placement of students on jobs.

How to Use the Units

Each unit has a unit numbering system and is color-coded for the convenience of the teacher. Each unit has been assigned a number which is found on the objective sheet. For example, the first unit is *Orientation to Distributive Education and DECA*. The unit number and the objective number is always the same, in this case, it is 1.00.

Each unit contains a terminal objective (blue sheet). The terminal objective will always be 1.00, 2.00, 3.00 . . . 20.00. The enabling objectives will always follow the terminal objective on blue sheets. Enabling objectives for each unit are always prefaced with the unit number and are numbered consecutively. For example, 2.06 is the sixth enabling objective in the second unit.

Each lesson plan (yellow sheets) is numbered within the unit in the order in which they are to be taught and are not to be confused with the terminal or enabling objectives numbering system.

Lesson plan 12.08, for example, is for the eighth lesson in unit twelve. In the lesson plan, the enabling objective(s) is listed that will be concentrated on during that lesson.

The assignment sheets (green), the information sheets (pink) and the transparency masters (white) are numbered according to the daily lesson plans, not the terminal or enabling objectives. For example, the first assignment sheet for lesson plan 12 is assignment sheet 12.01. The first transparency master for lesson plan 12 is TM 12.01. The information sheets, assignment sheets and transparency masters are keyed to the lesson plan, but are numbered independently of each other. Depending on what is being taught during the lesson, there could be several different assignment sheets, information sheets or transparency masters or a combination of all three.

Students should be provided copies of the objectives, information sheets and assignment sheets. These are available in sufficient quantities for classes at the Instructional Materials Laboratory at the University of Missouri-Columbia. These student materials can be given to students as a packet at the beginning of the unit to be used as needed, or the teacher may elect to give students the necessary materials on a daily basis.

There are two assessments at the end of each unit. One is the post-assessment (buff), and the other is the unit evaluation (buff).

Suggested Use of Units

Two-Year Programs

First year:

Orientation to D.E. and DECA

Parliamentary Procedure

Careers

Human Relations in Marketing and Distribution

Communications

Retailing

Free Enterprise

Physical Distribution

Mathematics

Getting a Job

Second year:

Selling

Human Relations on the Job

Customer Services

Sales Promotion

Operations

Buying and Pricing

Marketing Analysis

Economics of Marketing

Operating Your Own Business

Preparing for Promotion

One-Year Programs

Orientation to D.E. and DECA

Parliamentary Procedure

Careers

Human Relations in Marketing and Distribution

Communications

Mathematics

Getting a Job

Selling

Human Relations on the Job

Economics of Marketing

PHYSICAL DISTRIBUTION

OBJECTIVES

Terminal Objectives:

8.00 Upon completion of this unit the students should be able to discuss the process of moving, handling and storing merchandise until it reaches the ultimate consumer.

Enabling Objectives: After completion of this unit the students should be able to:

8.01 List and define, orally or in writing, 5 major career occupations in transportation pertaining to marketing and distribution.

8.02 Describe orally or in writing the activities involved in warehousing and merchandise-handling.

8.03 Name orally or in writing the three basic types of carriers used in transportation and tell how the operation performed by each is different.

8.04 Describe orally or in writing the various carriers of goods and/or people that operate on land, on sea, in the air and underground.

8.05 Discuss orally or in writing merchandise-handling operations and the equipment needed to move the merchandise in the warehouse.

8.06 Discuss orally or in writing appropriate steps necessary to transport a product from a producer to the retail store in order to reach the potential buyer.

8.07 Explain orally or in writing the requirements necessary to enter into a specific career in the transportation industry dealing with the retail, wholesale and service occupations.

PHYSICAL DISTRIBUTION

INTRODUCTION

This unit is to help students understand the system of physical distribution and to act as an aid in guiding students in preparing for future careers in the transportation industry dealing with the retail, wholesale and service occupations.

Physical distribution which involves the moving and storage of goods, services and people is one of the most important functions in our economy. Facilities such as trucks, trains, ships, airplanes and warehouses are very much a necessary part of our environment. Transporting and storing are two of the requirements to supply consumers with goods.

Physical Distribution is the key to mass distribution of goods. Without physical distribution our national economy would not grow rapidly and efficiently.

The teacher should use the teacher's guide and student handbook to provide the student with projects and information. The project is designed for approximately a 2-week period. An entire semester could be devoted to Physical Distribution if all projects are being used.

This unit is designed to be used in the introduction and orientation phase of Distributive Education as an overview of Physical Distribution.

PHYSICAL DISTRIBUTION

UNIT OUTLINE

I. Time for unit: Seven 55 minute class periods

II. Materials

A. Introduction

B. Objectives

C. Lesson Plan 1

1. Pre-Assessment

2. Pre-Assessment Key

3. Information Sheets

a. 1.01: Careers/Occupations in Transportation
b. 1.02: Different Types of Transportation

D. Lesson Plan 2

1. Information Sheet 2.01: Warehousing and Merchandise-Handling

2. Assignment Sheet 2.01: Defining Terms

E. Lesson Plan 3

1. Information Sheet 3.01: Carriers Used in Transportation and Their Operations

2. Assignment Sheet 3.01: Types of Carriers Used in Transportation

F. Lesson Plan 4

1. Information Sheet 4.01: Various Carriers of Goods and/or People

2. Assignment Sheets

a. 4.01: Various Carriers of Goods and/or People
b. 4.02: Channels of Distribution

G. Lesson Plan 5

1. Information Sheet 5.01: Materials Handling

2. Assignment Sheet 5.01: The Correct Way to Lift

H. Lesson Plan 6

1. Information Sheet 6.01: Our Economic System

2. Assignment Sheets

   a. 6.01: Determining Economic Processes
   b. 6.02: Transporting Products from Producers to the Retail Store: A Case Problem

I. Lesson Plan 7

1. Assignment Sheets

   a. 7.01: Career Plan
   b. 7.02: Applying for a Job

2. *Dictionary of Occupational Titles*

3. *Occupational Outlook Handbook*

4. Post Assessment

5. Post Assessment Key

PHYSICAL DISTRIBUTION

LESSON PLAN #1

Time for Lesson: 55 minutes

Objective: Given the proper resources the student will be able to:

8.01 List and define, orally or in writing, 5 major career occupations in transportation pertaining to marketing and distribution.

Resources:

1. Pre-assessment Test and Key
2. Information Sheet 1.01 - Careers/Occupations in Transportation
3. Information Sheet 1.02 - Different Types of Transportation

Teacher Activities:

1. Distribute pre-assessment test and have students take it in class.
2. Distribute Information Sheet 1.01 - Careers/Occupations in Transportation, and have students read in class and discuss.
3. Distribute Information Sheet 1.02 - Different Types of Transportation, and have students read in class and discuss.

Student Activities:

1. Answer questions on pre-assessment test in class.
2. Read and discuss orally with instructor, Information Sheet 1.01 - Careers/Occupations in Transportation.
3. Read and discuss orally with instructor, Information Sheet 1.02 - Different Types of Transportation.
4. List and define orally or in writing (5) five major career occupations pertaining to marketing and distribution.

PHYSICAL DISTRIBUTION

PRE ASSESSMENT

True or False

_____ 1. A pipe line is considered to be a form of transportation.

_____ 2. Fishyback service is where trucks are loaded onto water vessels instead of flat cars.

_____ 3. Materials handling is a means of moving products safely in and out of a store or warehouse.

_____ 4. A private carrier is a transportation company that owns transportation equipment and rents it to other companies.

_____ 5. The disadvantages of air transportation are high rates, weather slow-ups and limits on the size and weight of shipments.

_____ 6. Common equipment used in materials handling includes pallets, forklifts and wheelbarrows.

_____ 7. The science that deals with production, distribution and consumption of goods is called physical distribution economics.

PHYSICAL DISTRIBUTION

PRE ASSESSMENT KEY

1. T
2. T
3. F
4. F
5. T
6. T
7. F

PHYSICAL DISTRIBUTION

INFORMATION SHEET 1.01

Careers/Occupations in Transportation

Transportation occupations are concerned with moving people or materials by means of automotive and railway vehicles, aircraft, fresh-water or seagoing vessels, pipes and pumps.

It also includes loading materials into conveyances; ascertaining number of passengers and amount and kind of materials being conveyed; management and control.

RAILROAD TRANSPORTATION OCCUPATIONS.

Railroad transportation occupations are occupations concerned with transporting passengers and freight by controlling movement of trains, trolleys and other railway vehicles; collecting fares from passengers and giving information.

WATER TRANSPORTATION OCCUPATIONS.

This group includes occupations concerned with conveying passengers and cargo by controlling movement of ships, boats and other water vessels.

AIR TRANSPORTATION OCCUPATIONS.

This group performs a variety of personal services to airline passengers for reasons of their safety and comfort; (1) makes and confirms reservations; (2) compiles flight time records of flight officers for payroll and crew scheduling departments to insure legality of flights; (3) routes inbound and outbound air shipments to their destinations; (4) arranges for pickup and delivery of freight; (5) assembles cargo according to destination; (6) sells tickets; (7) plans routes; (8) computes cost of tickets.

PUMPING AND PIPELINE TRANSPORTATION OCCUPATIONS.

This group includes occupations concerned with conveying materials, such as oil, gas, water, coal, pulp* and slurry**, and by operating or tending pipeline pumps and related activities.

*pulp - a mixture of powdered ore and water
**slurry - a thin mixture of a liquid, especially water, and any of several finely divided substances, such as cements, plaster or paris, and clay particles and, currently coal.

PHYSICAL DISTRIBUTION

INFORMATION SHEET 1.02

Different Types of Transportation

A. *Water Carriers*

1. Water carriers operate on:

   a. Navigable rivers
   b. Canals
   c. Great Lakes
   d. Oceans

2. Services rendered by water carriers are:

   a. Transportation of heavy, bulky commodities at lower rates if shippers are located close to water facilities
   b. Facilities that are better suited to loading and unloading bulk shipments

   The ships and barges of today bear little resemblance to the older vessels. They have been developed to haul railroad cars and truck trailers. Others have been designed specially for dry cargo, such as sugar, grain and coal.

B. *Two New Types Are:*

1. a. *Fishyback service*--Trucks are loaded onto vessels instead of flat cars.

   b. *Containerisation*--Transportation of freight which is in sealed containers.

2. *Advantages of water transportation*

   a. Low cost
   b. Large quantity of bulky commodities can be shipped at one time

3. *Disadvantages of water transportation*

   a. It is very slow
   b. Limited to products with low perishability
   c. Infrequent departures and arrivals
   d. Delay caused by bad weather conditions

C. *Railroad Carriers*

1. *The two basic shipping services offered by the railroad are:*

   a. Carload lots--Shipment that completely fills a freight car
   b. Less-than-carload--Shipment that does not fill a freight car

   Piggyback or TOFC (trailer on flatcar), service developed to give freight cars more uses and to meet the growing competition from trucks. Piggyback is transportation of highway trailers or demountable trailer bodies on specially equipped rail cars.

2. The government agent regulating railroad rates is the Interstate Commerce Commission.

D. *Pipelines*

1. *Products transported by pipelines are:*

   a. Oil
   b. Gas
   c. Dry products

      1) Ore - (Iron, Coal)
      2) Gravel
      3) Grain

   d. Chemicals

2. *Advantages of pipelines*

   a. Largely unaffected by weather, traffic and other problems of the environment
   b. Low cost of maintenance

3. *Disadvantages of pipelines*

   a. A pipeline is incomplete because other methods must be used to deliver the product from terminals to retailers and industrial users.
   b. Area is limited because of its high cost of installation.
   c. Pipelines carry only certain types of products.

E. *Air Freight*

1. *Advantages*

a. Convenient
b. Quick safe service
c. Less deterioration of goods
d. Less transportation insurance
e. Need for less protective packing
f. Ship in small quantities

2. *Disadvantages*

a. High rates
b. Limited in size and weight of the shipment
c. Weather delays

3. *Examples of products shipped by air freight are:*

a. Computers
b. Calculating and accounting machines
c. Tool and die equipment
d. Wearing apparel
e. Industrial hardware

4. *Other shipments sent by air are as follows:*

a. Light in weight
b. Small in size
c. High in value
d. Often perishable

The Civil Aeronautics Board regulates airline transportation.

F. *Motor Carriers*

1. *Advantages*

a. Convenient
b. Fast
c. Flexible
d. Handles a wide variety of shipment sizes and goods
e. Can reach even the most remote areas
f. Can travel over a public highway system

2. *Disadvantages*

a. High cost of loading and unloading small less-than-carload shipments

b. Because of their comparatively small size, trucks are less desirable for transporting bulk goods such as grain and coal than trains or ships
c. Frequent rest stops by drivers on long hauls
d. Frequently fully loaded one way but they must make the return trip partially loaded or empty

3. *Definition of terms:*

a. LTL -- Less-than-truckload shipments
b. Over-the-road service -- long-distance hauling of merchandise
c. Short-haul service -- Local delivery of merchandise
d. Piggybacking -- a system for carrying loaded truck trailers on specially designed railroad flatcars.

4. The government agency regulating motor transportation is the Interstate Commerce Commission.

PHYSICAL DISTRIBUTION

LESSON PLAN #2

Time for Lesson: 55 minutes

Objective: Given the proper resources the student will be able to:

8.02 Describe orally or in writing the activities involved in warehousing and merchandise-handling.

Resources:

1. Information Sheet 2.01 - Warehousing and Merchandise-Handling
2. Assignment Sheet 2.01 - Defining Terms

Teacher Activities:

1. Distribute Information Sheet 2.01 - Warehousing and Merchandise-Handling, and have students read in class and discuss.
2. Show TM 2.01 - Channels of Distribution, and discuss with students.
3. Distribute Assignment Sheet 2.01 - Defining Terms, to be completed in class and discussed.

Student Activities:

1. Read and discuss with instructor, Information Sheet 2.01 - Warehousing and Merchandise-Handling.
2. Complete Assignment Sheet 2.01 - Defining Terms, in class and discuss.

PHYSICAL DISTRIBUTION

INFORMATION SHEET 2.01

Warehousing and Merchandise-Handling

This division includes occupations concerned with preparing and arranging materials and products in bulk and nonbulk forms for distribution or storage; moving and loading or unloading equipment, materials and products; operating or tending, filling, packing and wrapping machines or conveyors; driving forklifts, lumber carriers and related materials-handling machinery and equipment; and using scoops, handtrucks and wheelbarrows.

DEFINITION OF WAREHOUSE

A warehouse is the heart of the physical distribution system. It is a storage and handling facility.

PURPOSES OF WAREHOUSES

1. Warehousing protects our products against theft, fire, flood, heat and cold, insects and animals.
2. Increases the value of goods.
3. Warehousing helps stabilize prices and eases financial burdens.
4. Warehousing adds usefulness and value to the goods by having the product at hand when needed (time and place utility).

TYPES OF WAREHOUSES

Public Warehouses is an independent business that provides the service of storing and handling goods for other businesses. These warehouses own their own building and equipment but do not own the goods they handle. Fees are based on the amount of space the customer uses, the length of time the goods are stored, and the kind of handling or processing requested.

General-merchandise Warehouse is the most common type of public warehouse. It stores any kind of product that needs only protection from the weather.

Private Warehouse is a storage and handling facility owned by the company that uses it. Companies that own their own warehouses try to locate them close to where the goods will be needed.

Bonded Warehouse is used to store products requiring a federal tax. These products called "bonded products" are any domestic or imported product that cannot be removed from a warehouse and sold until taxes are paid. Bonded warehouses are either public or private.

MATERIALS HANDLING

Materials handling means moving products safely in and out of the warehouse or from one carrier to another and storing them properly. Activities include assembling, packing, weighing and moving the products.

PHYSICAL DISTRIBUTION

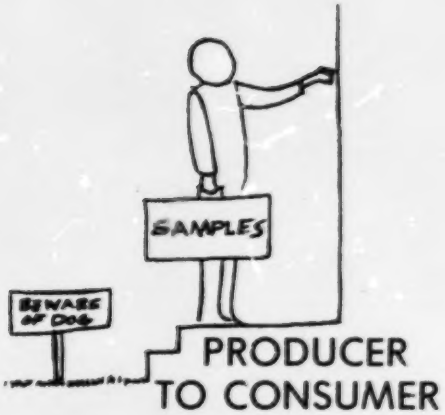
ASSIGNMENT SHEET 2.01

Defining Terms

Directions: Define (1) transportation, (2) warehousing and (3) merchandise-handling. Explain why you feel these activities are necessary.

CHANNELS OF DISTRIBUTION

EACH HAS ADVANTAGES



PRODUCER TO CONSUMER

PRODUCER TO RETAILER TO CONSUMER

PRODUCER TO WHOLESALER TO RETAILER TO CONSUMER

PRODUCER TO AGENT TO WHOLESALER TO RETAILER TO CONSUMER

PHYSICAL DISTRIBUTION

LESSON PLAN #3

Time for Lesson: 55 minutes

Objective: After completion of this lesson students should be able to:

8.03 Name orally or in writing the three basic types of carriers used in transportation and tell how the operation performed by each is different.

Resources:

1. Information Sheet 3.01 - Carriers Used in Transportation and Their Operations
2. Assignment Sheet 3.01 - Types of Carriers Used in Transportation

Teacher Activities:

1. Distribute Information Sheet 3.01 - Carriers Used in Transportation and Their Operations. Have students read and discuss in class.

2. Distribute Assignment Sheet 3.01 - Types of Carriers Used in Transportation. Complete in class and discuss.

Student Activities:

1. Read and discuss Information Sheet 3.01 - Carriers Used in Transportation and Their Operations.
2. Complete in class and discuss Assignment Sheet 3.01 - Types of Carriers Used in Transportation.

INFORMATION SHEET 3.01

Carriers Used in Transportation and Their Operations

DEFINITION OF A CARRIER

A carrier is a company that transports goods between the producer and consumer or the industrial user.

KINDS OF CARRIERS

Carriers are classified into three types:

Common Carrier--Transportation company that provides transport services to any shipper for a fee and takes full responsibility for the safe arrival.

Contract Carrier--Transportation company that owns transportation equipment and rents it to other companies.

Private Carrier--Transportation facility owned and used by a firm to transport its products.

OPERATIONS OF THE COMMON CARRIER

1. Common carriers are closely regulated by Federal and state governments
2. Their rates must be published, approved by appropriate agencies and nondiscrimnatory
3. Common carriers do not compete on a price basis. Their prices and services must be offered to the same shippers
4. The geographic areas they can serve and the types of products they carry are also regulated. Some carriers carry all kinds of goods. Other common carriers specialize in a single kind of good or a related group of goods, such as fresh vegetables, liquid petroleum products, or grain.

OPERATIONS OF THE CONTRACT CARRIER

1. Rents its own transportation and equipment to other companies for a specified length of time.

2. If often responsible for servicing and maintaining its own equipment.

3. Is not responsible for the goods being transported.

4. Is regulated, but not as rigidly as common carriers.

OPERATIONS OF THE PRIVATE CARRIER

1. Not regulated by Federal and state governments.

2. Must own the products being shipped.

3. Must employ the drivers.

4. Products or commodities must be related to the company's principal business.

5. Company must own or lease the equipment being used.

ASSIGNMENT SHEET 3.01

Types of Carriers Used in Transportation

Classify the following carriers as common, contract or private. Give reasons for your choice.

1. Hollins Baking Company delivers its goods in its own trucks.

2. Union Transport owns its trucks and hauls gasoline for other companies.

3. Robinson Hauling Company rents trucks to other firms.

4. Jacks Trucking Company owns its trucks and hauls coal from local mines.

5. Murphy Mining Company ships ore in its barges.

PHYSICAL DISTRIBUTION

LESSON PLAN #4

Time for Lesson: 55 minutes

Objective: After completion of this lesson the students will be able to:

8.04 Describe orally or in writing the various carriers of goods and/or people that operate on land, on sea, in the air and underground.

Resources:

1. Information Sheet 4.01 - Various Carriers of Goods and/or People
2. Assignment Sheet 4.01 - Various Carriers of Goods and/or People
3. Assignment Sheet 4.02 - Channels of Distribution

Teacher Activities:

1. Distribute Information Sheet 4.01 - Various Carriers of Goods and/or People. Have students read in class and discuss.

2. Distribute and complete by the next class period Assignment Sheet 4.01 - Various Carriers of Goods and/or People.

3. Distribute and discuss in class Assignment Sheet 4.02 - Channels of Distribution.

Student Activities:

1. Read and discuss Information Sheet 4.01 - Various Carriers of Goods and/or People.
2. Complete by the next class period Assignment Sheet 4.01 - Various Carriers of Goods and/or People.
3. Read, complete and discuss in class Assignment Sheet 4.02 - Channels of Distribution.

PHYSICAL DISTRIBUTION

INFORMATION SHEET 4.01

Various Carriers of Goods and/or People

WATER CARRIERS

A. Various classes of water carriers, how they operate and examples of types of vessels:

1. Common, contract and private

2. Interstate Commerce Act - Part III classifies water carriers according to their annual gross revenues:

a. Class A - Annual gross revenue of more than $500,000.
b. Calss B - Revenue between $100,000 and $500,000.
c. Class C - Revenue of less than $100,000.

3. Type of vessel:

a. Self-propelled vessels
b. Sailing vessels
c. Barge services
d. Towing vessels
e. Vessels furnished to persons for transportation of their property

B. Four sea-going vessels:

1. Ships

a. Line shipping -- carry passengers and cargo
b. Tramp ships -- carry cargo and a few passengers

2. Barges

3. Tankers

4. Freighters

AIR TRANSPORTATION

A. Names of the air-cargo service carriers

1. Trunk line carriers

a. Eleven domestic trunk lines or main lines - offering regularly scheduled service of passengers, mail and goods

b. Airline companies offering this service

1) American
2) Braniff
3) Continental
4) Delta
5) Eastern
6) National
7) Northwest
8) Trans World
9) United
10) Western
11) Pan American

2. Local service carriers -- operate between smaller cities

3. Cargo only carriers -- Flying Tigers, Seaboard and Slick domestic and trans-continental routes

4. Other air carriers -- air-taxi operators and helicopters

LAND CARRIERS

A. Buses, trucks, railroads, pipelines and local transit vehicles - motor carriers are practical because:

1. Their schedules are flexible.

2. They can pick up and deliver goods at the convenience of the shipper or buyer.

3. Any type of product can be shipped with speed and efficiency.

B. Trucks - Trucks are used mainly in two ways:

1. Over-the-road service -- the long-distance hauling of merchandise.

2. Short-haul service -- the local delivery of merchandise.

Thanks to our high developed roads, trucks can reach the most remote areas.

C. Railroads - Equipment and services are:

1. Larger freight cars.

2. Standard 40 foot boxcar is still in use.

3. 80 foot boxcar is still in use.

4. Covered hopper car and "damage free" freight car and the unit train.

D. Kinds of railroad carriers:

1. Freight train -- *Piggyback*, or TOFC (trailer on flatcar), service has been developed to give freight cars more uses and to meet the growing competition of trucks. *Fishyback* adds water transportation to the piggyback patter. Trailer trucks are carried piggyback to the port, and then loaded onto ships or barges.

2. Less-than-carload is a shipment that does not fill a freight car. Car-load is a shipment that completely fill the freight car.

3. Passenger train (Amtrak) supported by public funds and various railroad companies. It is a semipublic corporation called the National Railroad Passenger Corporation.

PIPELINES

A. Pipelines are specialized carriers that transport petroleum products and natural gas. Products usually transported by pipelines are oil, gas, dry products (ore, gravel and grain), chemicals.

B. Three types of pipelines are:

1. Gathering -- the gathering line brings oil from wells to storage points.

2. Crude line -- pumps the oil from the storage points to the refinery.

3. Product lines -- carry gasoline, kerosene and other refined products to market areas.

PHYSICAL DISTRIBUTION

ASSIGNMENT SHEET 4.01

Various Carriers of Goods and/or People

Prepare a form and list the following methods of transportation in the left-hand column: truck, ship, pipeline, air carrier. For each method of transportation, think of a type of company that might use it, and record your answer in the center column. In the right-hand column, describe the purpose for which the company would use the method of transportation.

EXAMPLE OF FORM:

Method of Transportation	Type of Company	Transportation Purpose

35

PHYSICAL DISTRIBUTION

ASSIGNMENT SHEET 4.02

Channels of Distribution

1. Corn from Nebraska
2. Wheat
3. Oranges from California
4. Strawberries from Florida
5. Lobsters from Maine
6. Natural gas from Louisiana (New Orleans)
7. Motor cars from Detroit
8. Fashion shoes from Paris

PHYSICAL DISTRIBUTION

LESSON PLAN #5

Time for Lesson: 55 minutes

Objective: After completion of this lesson, the student will be able to:

8.05 Discuss orally or in writing merchandise-handling operations and the equipment needed to move the merchandise in the warehouse.

Resources:

1. Information Sheet 5.01 - Materials Handling
2. Assignment Sheet 5.01 - The Correct Way to Lift

Teacher Activities:

1. Distribute Information Sheet 5.01 - Materials Handling. Have students read and discuss in class.

2. Show TM 5.01 - Lifting Techniques, and discuss with students.

3. Have students perform in class the task on Assignment Sheet 5.01 - The Correct Way to Lift.

Student Activities:

1. Read and discuss Information Sheet 5.01 - Materials Handling.
2. Perform task described in Assignment Sheet 5.01 - The Correct Way to Lift.

PHYSICAL DISTRIBUTION

INFORMATION SHEET 5.01

Materials Handling

Materials handling is the process of assembling, packing, weighing and moving products from a producer to a warehouse, from a warehouse to a carrier, or from one carrier to another. Materials handling also includes receiving, storing, processing and shipping.

RECEIVING

The first job at the warehouse is to see that shipments are received safely and intact. The goods must be unloaded safely and carefully inspected to be sure that it is in the condition claimed by the shipper. Any damages should be discovered at the warehouse, noted and reported to the shipper.

EQUIPMENT USED TO UNLOAD AND MOVE MERCHANDISE

1. Automatic conveyor belts that travel to the set destination
2. Carts
3. Pallets that travel along the floor in the way that a hydrofoil boat travels on water
4. Forklifts and tractors
5. Wheelbarrows, two-wheel trucks, the four-wheel hand truck
6. Hampers, tote boxes, head rails

SAFETY IN MATERIALS HANDLING

1. The right way to lift
   a. Size up the object to be lifted.
   b. Get a firm balance on your feet by spreading them apart about 8 to 10 inches.
   c. Place your feet close to the object you are going to lift.

d. Bend your knees outward and crouch down. Straddle a corner of the load. Keep your back straight. Don't let your back arch.

e. Start pushing up with your legs.

f. Keep the load close to your body as you lift it to carrying position.

g. Get help if the load it too heavy for you to lift alone.

2. The right way to put down a load

a. Keep the load close to your body. Bend your knees outward; keep your back straight. Lower the load with your leg muscles.

b. Watch out for your fingers as you put the load down. Lower a corner away from the finger when you put a load down.

c. Withdraw the hands as the rest of the load reaches the floor.

d. Push heavy loads on tables and shelves with the arms and body.

STORING

Warehouse storing equipment includes bins for small items, island stacks used for larger products and overhead racks used for hanging products in spaces that would otherwise be unusable.

PROCESSING

The amount of processing a shipment needs depends on the number of services available and on the wishes of the owner of the goods. Shipments may be split up and stored by units. Units may be price-marked and repackaged.

SHIPPING

The final job of the warehouse is moving the shipment out of the storage safely and on its way to its next destination. In the warehouse, customer orders are transmitted to the warehouse. There the order-filling department checks the order, prepares the invoice, requests that the items be withdrawn from storage and makes arrangements to transport the items to the customer.

PHYSICAL DISTRIBUTION

ASSIGNMENT SHEET 5.01

The Correct Way to Lift

Describe orally or draw a diagram on the correct way to lift a package that is bulky.

40

Lifting Techniques

PHYSICAL DISTRIBUTION

LESSON PLAN #6

Time for Lesson: 55 minutes

Objective: After completion of this lesson, the student will be able to:

8.06 Discuss orally or in writing appropriate steps necessary to transport a product from a producer to the retail store in order to reach the potential buyer.

Resources:

1. Information Sheet 6.01 - Our Economic System
2. Assignment Sheet 6.01 - Determining Economic Processes
3. Assignment Sheet 6.02 - Transporting Products from Producers to the Retail Store: A Case Problem

Teacher Activities:

1. Distribute and have students read and discuss in class Information Sheet 6.01 - Our Economic System.

2. Distribute, discuss and complete in class Assignment Sheet 6.01 - Determining Economic Processes.

3. Distribute and have students complete by the next class period Assignment Sheet 6.02 - Transporting Products from Producers to the Retail Store: A Case Problem.

Student Activities:

1. Read and discuss Information Sheet 6.01 - Our Economic System.
2. Complete and discuss in class Assignment Sheet 6.01 - Determining Economic Processes.
3. Complete by the next class period Assignment Sheet 6.02 - Transporting Products from Producers to the Retail Store: A Case Problem.

PHYSICAL DISTRIBUTION

INFORMATION SHEET 6.01

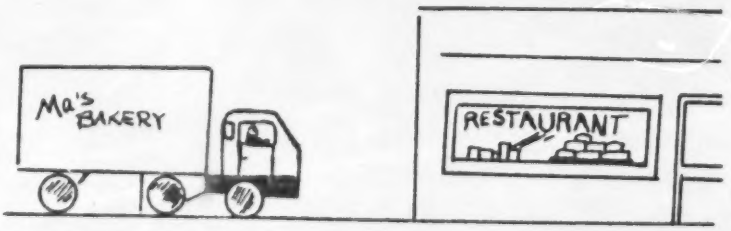
Our Economic System

Everyone needs the basic necessities of food, clothing and shelter. In addition people have wants, goods they don't need to survive, but make living more enjoyable, as television sets, automobiles, etc. The science that deals with the production, distribution and consumption of goods that satisfy these needs and wants is called *ECONOMICS*.

THE ECONOMIC PROCESSES

Production--Making the goods

Distribution--Bringing goods from those who make them to those who use them



Consumption--Using the goods

PHYSICAL DISTRIBUTION

ASSIGNMENT SHEET 6.01

Determining Economic Processes

1. Use the chart below--show where each business belongs in the economic process:

   a. Kroger Grocery
   b. TWA Airlines
   c. Ace Manufacturing Co.
   d. The John Smith Family
   e. Dolan Public Warehouse
   f. Macy's
   g. The Jones Family
   h. H. C. Mining Co.
   i. Park Lumber Co.
   j. Wicks Furniture Store
   k. Mr. Bob White

PRODUCTION	DISTRIBUTION	CONSUMPTION

2. Use your local telephone directory to find names of businesses engaged in production and distribution. List them on the chart.

PRODUCTION	DISTRIBUTION

ASSIGNMENT SHEET 6.02

Transporting Products From Producers to the Retail Store: Case Problem

Assume that you own a discount store-supermarket. You have ordered several shipments from various parts of the country and must arrange for the most suitable methods of shipment. You will pay all shipping charges. Assume that water transportation is the cheapest but slowest method, that air freight is the fastest but most expensive method, and that truck and rail transportation offers moderate speed at costs between those of air freight and water transportation.

Directions: Determine the best means of transporting the following products to your company:

1. From Florida: 400 crates of oranges
2. From California: 300 bathing suits
3. From New Orleans: 100 containers of shrimp
4. From Georgia: a carload shipment of canned peaches

Include in your information the following:

1. Product
2. Approximate shipping time
3. Suggested transportation method
4. Reason for choice

PHYSICAL DISTRIBUTION

LESSON PLAN #7

Time for Lesson: 55 minutes

Objective: After completion of this lesson the student will be able to:

8.07 Explain orally or in writing the requirements necessary to enter into a specific career in the transportation industry dealing with the retail, wholesale and service occupations.

Resources:

1. Assignment Sheet 7.01 - Career Plan
2. Assignment Sheet 7.02 - Applying for a Job
3. *Dictionary of Occupational Titles*
4. *Occupational Outlook Handbook*
5. Post Assessment Test and Key
6. Other resources made available by school, teachers and businesses

Teacher Activities:

1. Duplicate and distribute pages out of the *Dictionary of Occupational Titles* and *Occupational Outlook Handbook* having to do with physical distribution and have students read in class.

2. Distribute and complete in class Assignment Sheet 7.01 - Career Plan.

3. Distribute and complete by the next class period Assignment Sheet 7.02 - Applying for a Job.

4. Distribute Post Assessment Test, and have students take in class.

Student Activities:

1. Read pages out of the *Dictionary of Occupational Titles* and *Occupational Outlook Handbook.*
2. Complete and discuss in class Assignment Sheet 7.01 - Career Plan.
3. Complete by the next class period Assignment Sheet 7.02 - Applying for a Job.
4. Answer questions in class on the Post Assessment Test.

PHYSICAL DISTRIBUTION

ASSIGNMENT SHEET 7.01

Career Plan

Using the *Dictionary of Occupational Titles* and the *Occupational Outlook Handbook* have the students investigate career possibilities in physical distribution. Based on a career possibility that interests them have them fill out the following form.

A. CAREER OBJECTIVE

Job title _____

B. JOB PREFERENCES

I want to work in _____
(Type of Industry)

I want to perform _____
(Type of Job)

I want to live in:

____ metropolitan ____ rural area ____ small town

____ other ____ doesn't matter

I want to:

____ work alone ____ with people ____ be supervised

____ supervise others ____doesn't matter

C. EDUCATION AND TRAINING

List the education and training required to attain your job preference.

Education and Training	Courses	Estimated Time	Resources	Reasons
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

D. WORK EXPERIENCE

List the work experience which you plan to undertake in order to achieve your ultimate career objective.

Job	Estimated Time	Type of Business	Experience to be Gained

E. ADDITIONAL CONSIDERATIONS

List any other considerations which may affect career plan. For example, some female students may plan to leave the work-force during child-rearing years.

Considerations	Reasons

PHYSICAL DISTRIBUTION

ASSIGNMENT SHEET 7.02

Applying for a Job

Directions: Pretend that you are applying for a specific transportation job, and write down several reasons why you should be hired for that job. To do this, you have to think about the requirements for the job and your qualifications.

49

PHYSICAL DISTRIBUTION

POST ASSESSMENT

True or False

_____ 1. Pumping and pipeline transportation occupations are concerned with conveying materials such as oil, water, pulp and coal.

_____ 2. The advantages of water transportation are low cost, and a large quantity of bulky commodities can be shipped at one time.

_____ 3. Two common disadvantages of motor carriers are that they must make return trips partially loaded or empty, and they cannot reach remote areas.

_____ 4. The purposes of a warehouse are to protect goods, increase the value of goods and ease financial burdens.

_____ 5. A bonded warehouse is the most common type of public warehouse.

_____ 6. A common carrier is a company that provides transport services to only the shipper for a fee and takes full responsibility for the safe arrival.

_____ 7. Trucks are used in two main ways: over-the road service and short-haul services.

_____ 8. The best way to do lifting in a warehouse is in a manner most comfortable for you.

_____ 9. The three main factors in economics are production, distribution and consumption.

_____10. A warehouse is the heart of the physical distribution system.

PHYSICAL DISTRIBUTION

POST ASSESSMENT KEY

1. T
2. T
3. F
4. T
5. F
6. T
7. T
8. F
9. T
10. T